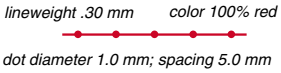
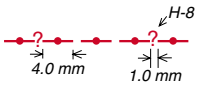
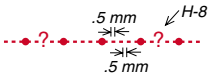
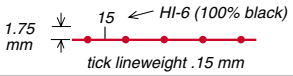
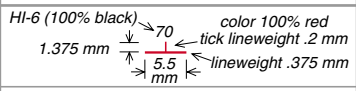
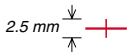
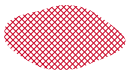
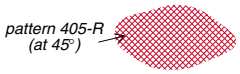
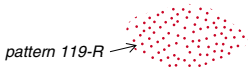
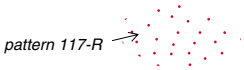
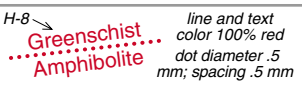
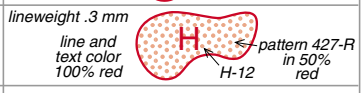
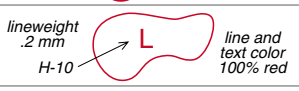
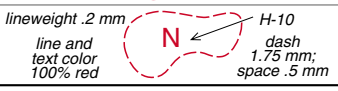
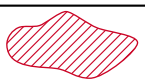
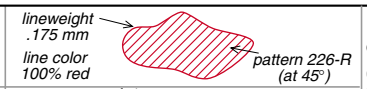
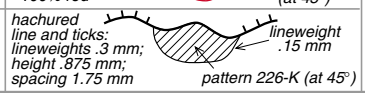
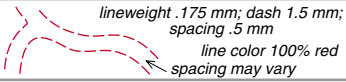
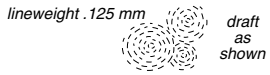
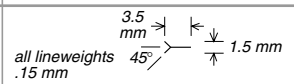
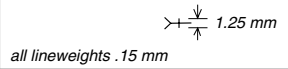
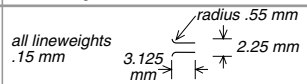
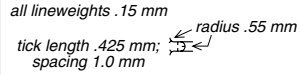
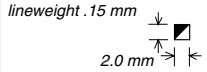
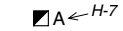
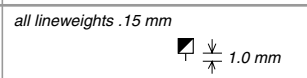
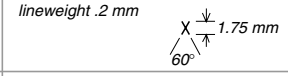
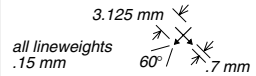
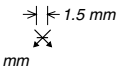
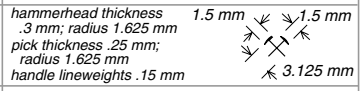
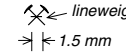
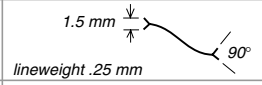
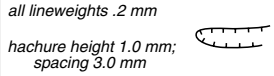
19—NATURAL RESOURCES

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
19.1—Veins and mineralized areas; metamorphic facies boundary; mineral resource areas				
19.1.1	Vein—Certain			May also be shown in black or other colors.
19.1.2	Vein—Approximately located			
19.1.3	Vein—Approximately located, queried			
19.1.4	Vein—Concealed			
19.1.5	Vein—Concealed, queried			
19.1.6	Vein—Showing type of mineral occurrence			Place symbols where observation was made. Dip value indicates a measured dip direction and magnitude.
19.1.7	Vein—Showing dip where known			
19.1.8	Mineralized stringers, veinlets			May also be shown in black or other colors.
19.1.9	Minor inclined vein—Showing strike and dip			May also be shown in black or other colors.
19.1.10	Minor vertical or near-vertical vein—Showing strike			
19.1.11	Zone of mineralized or altered rock, type 1			Add labels to show specific types of alteration. May be used alone or may overprint other mapped units. May also be shown in black or other colors.
19.1.12	Zone of mineralized or altered rock, type 2—High level of mineralization			
19.1.13	Zone of mineralized or altered rock, type 2—Low level of mineralization			
19.1.14	Metamorphic facies boundary—Showing approximate boundary between diagnostic mineral assemblages			May also be shown in black or other colors.
19.1.15	Area of identified resources			Usually reserved for use on special-purpose maps, not on general-purpose geologic maps. Generally shown in red, but may also be shown in black or other colors.
19.1.16	Area of high mineral resource potential			
19.1.17	Area of moderate mineral resource potential			
19.1.18	Area of low mineral resource potential			
19.1.19	Area considered to have mineral resource potential but not evaluated, mostly because of inadequate data			

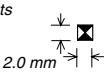
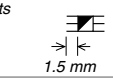
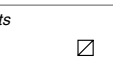
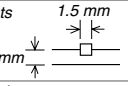
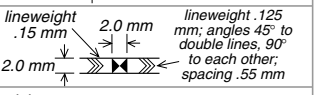
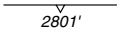
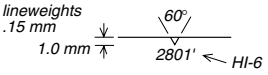
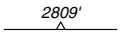
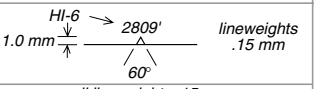
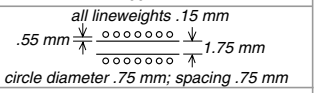
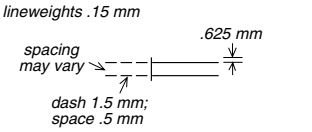
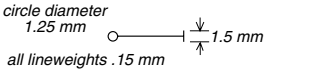
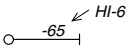
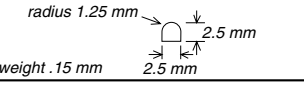
19—NATURAL RESOURCES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
19.2—Areas of extensively disturbed ground and workings as mapped units				
19.2.1	Graded area—Extensive amount of mapped geologic unit has been removed			Patterns should overlay other mapped units. Generally shown in black or red, but may also be shown in other colors.
19.2.2	Strip mine			
19.2.3	Artificial fill—Earth materials			Show as separately mapped units. Generally shown in black or red, but may also be shown in other colors.
19.2.4	Artificial fill—Human-generated refuse (landfill)			
19.2.5	Open pit mine or quarry (surface view)			Symbols should overlay other mapped units. Generally shown in black or red, but may also be shown in other colors.
19.2.6	Subsurface workings (projected to surface)			
19.2.7	Tailings, including tailings pond (surface view)			Show as separately mapped units. Generally shown in black, but may also be shown in red or other colors.
19.2.8	Mine dump (surface view)			

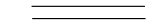
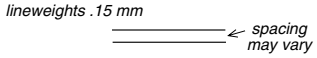
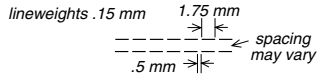
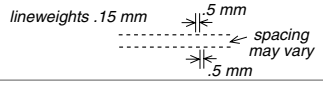
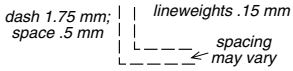
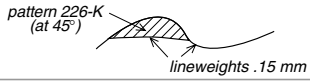
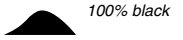
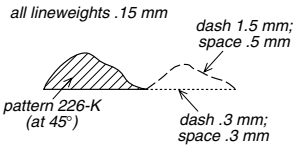
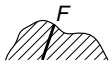
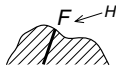
19—NATURAL RESOURCES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
19.3—Mining and mineral-exploration symbology				
19.3.1	Drill hole for mineral exploration			
19.3.2	Inclined tunnel or adit			Rotate symbol so that long line indicates azimuth of adit; place intersection of long line and two shorter ones at map position of adit.
19.3.3	Inclined tunnel or adit, inaccessible			
19.3.4	Portal			Rotate symbol so that long lines indicate azimuth of portal; place curved ends of long lines at map position of portal.
19.3.5	Portal and open cut			
19.3.6	Vertical mine shaft			
19.3.7	Multiple vertical mine shafts			
19.3.8	Vertical mine shaft—Abandoned or inaccessible			
19.3.9	Inclined mine shaft			Orientation indicates location of entry at surface.
19.3.10	Inclined mine shaft—Abandoned or inaccessible			
19.3.11	Prospect (pit or small open cut)			
19.3.12	Sand, gravel, clay, or placer pit			
19.3.13	Sand, gravel, clay, or placer pit—Abandoned			
19.3.14	Open pit, quarry, or glory hole			
19.3.15	Open pit, quarry, or glory hole—Abandoned			
19.3.16	Trench (surface view)—Generalized trace			For generalized trace, bar follows direction of trench; length of bar may vary.
19.3.17	Trench (surface view)—Drawn to scale			

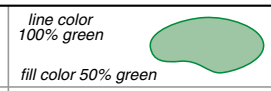
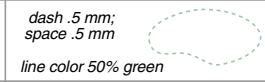
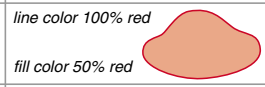
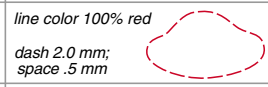
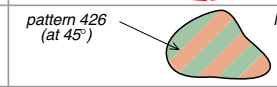
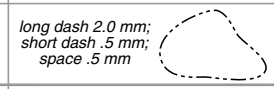
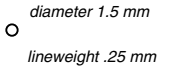
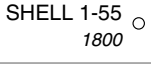
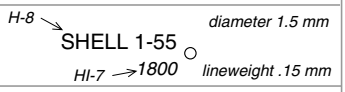
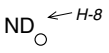
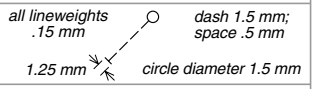
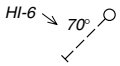
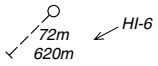
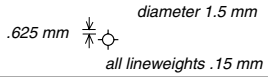
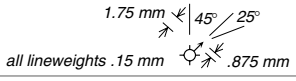
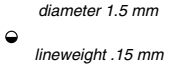
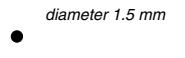
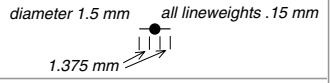
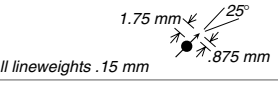
19—NATURAL RESOURCES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
19.4—Mines and underground workings				
19.4.1	Mine shaft—Above and below level			
19.4.2	Inclined mine shaft—Above and below level			
19.4.3	Bottom of mine shaft			
19.4.4	Winze or head of raise			
19.4.5	Raise or foot of winze			
19.4.6	Raise or winze extending through level			
19.4.7	Ore chute			Orientation indicates azimuth of feature.
19.4.8	Inclined workings—Above and below level. Chevrons point down incline			
19.4.9	Elevation of roof or back			
19.4.10	Elevation of floor or sill			
19.4.11	Lagging or cribbing along drift			
19.4.12	Caved or otherwise inaccessible workings—Below ground			
19.4.13	Caved or otherwise inaccessible workings—Above ground			
19.4.14	Diamond drill hole			
19.4.15	Diamond drill hole—Showing angle of inclination. Negative angles show downward slope			
19.4.16	Crosscut tunnel			

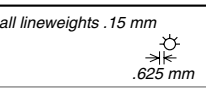
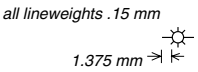
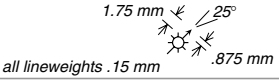
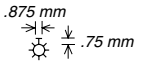
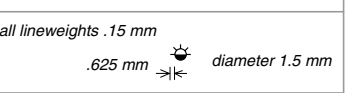
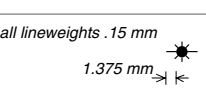
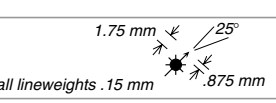
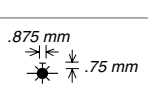
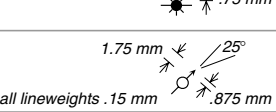
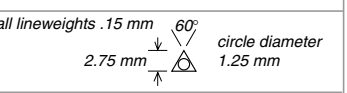
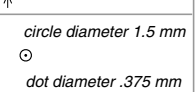
19—NATURAL RESOURCES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
19.4—Mines and underground workings (continued)				
19.4.17	Mine tunnel and workings (section view)—High certainty			Orientation indicates azimuth of tunnel.
19.4.18	Mine tunnel and workings (section view)—Medium certainty			
19.4.19	Mine tunnel and workings (section view)—Low certainty			
19.4.20	Shaft and tunnel—Near line of section (projected to section)			
19.4.21	Mine dump (section view)			
19.4.22	Rubble (section view)			
19.4.23	Stoped area (section view)—Certain			Different patterns may be used to indicate type of rock or ore removed.
19.4.24	Stoped area (section view)—Inferred			
19.4.25	Backfilled stope (section view)			

19—NATURAL RESOURCES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
19.5—Oil and gas fields; wells drilled for hydrocarbon exploration or exploitation				
19.5.1	Oil field—Extent defined			Patterned areas (extent defined) should be shown as separately mapped units. Outlined areas (extent not yet defined) should overlay other mapped units. Generally shown in red and (or) green, but may also be shown in other colors or patterns.
19.5.2	Oil field—Extent not yet defined			
19.5.3	Gas field—Extent defined			
19.5.4	Gas field—Extent not yet defined			
19.5.5	Oil and gas field—Extent defined			
19.5.6	Oil and gas field—Extent not yet defined			
19.5.7	Drilling well (hydrocarbon exploration)			On general-purpose maps, show in black. On energy or other special-purpose maps, may show water wells in cyan, oil wells in green, and gas wells in red.
19.5.8	Drill hole—Showing operator number and total depth (in feet)			
19.5.9	Drill hole—No geologic data			
19.5.10	Trace of inclined drill hole			
19.5.11	Trace of inclined drill hole—Showing inclination			
19.5.12	Trace of inclined drill hole—Showing collar altitude (72 m) and total depth (620 m)			
19.5.13	Dry hole—Unsuccessful hole drilled during hydrocarbon exploration			
19.5.14	Dry hole converted to water well			
19.5.15	Dry hole converted to injection well			
19.5.16	Show of oil			
19.5.17	Oil well			
19.5.18	Shut-in oil well			
19.5.19	Abandoned oil well			
19.5.20	Abandoned oil well—Converted to water well			
19.5.21	Abandoned oil well—Converted to injection well			
19.5.22	Capped oil well			

19—NATURAL RESOURCES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
19.5—Oil and gas fields; wells drilled for hydrocarbon exploration and exploitation (continued)				
19.5.23	Show of gas			On general-purpose maps, show in black. On energy or other special-purpose maps, may show water wells in cyan, oil wells in green, and gas wells in red.
19.5.24	Gas well			
19.5.25	Shut-in gas well			
19.5.26	Abandoned gas well			
19.5.27	Abandoned gas well—Converted to water well			
19.5.28	Abandoned gas well—Converted to injection well			
19.5.29	Capped gas well			
19.5.30	Show of oil and gas			
19.5.31	Oil and gas well			
19.5.32	Shut-in oil and gas well			
19.5.33	Abandoned oil and gas well			
19.5.34	Abandoned oil and gas well—Converted to water well			
19.5.35	Abandoned oil and gas well—Converted to injection well			
19.5.36	Capped oil and gas well			
19.5.37	Abandoned well—Converted to water well			
19.5.38	Abandoned well—Converted to injection well			
19.5.39	Salt-water disposal well			
19.5.40	Water-injection well			
19.5.41	Water-input well